

WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor device comprising the steps of:  
forming a semiconductor film on an insulating surface;  
crystallizing the semiconductor film by irradiation of harmonic of a YVO<sub>4</sub> laser;  
patterning the crystallized semiconductor film to form a crystallized island-like semiconductor film; and  
forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.
  
2. A method of manufacturing a semiconductor device according to claim 1, wherein the semiconductor film is an amorphous semiconductor film or a micro crystal semiconductor film.
  
3. A method of manufacturing a semiconductor device according to claim 1, wherein the harmonic is one of second harmonic, third harmonic, and fourth harmonic.
  
4. A method of manufacturing a semiconductor device comprising the steps of:  
forming a semiconductor film on an insulating surface;  
crystallizing the semiconductor film by irradiation of a continuous wave YVO<sub>4</sub> laser;  
patterning the crystallized semiconductor film to form a crystallized island-like semiconductor film; and  
forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.
  
5. A method of manufacturing a semiconductor device according to claim 4, wherein the semiconductor film is an amorphous semiconductor film or a micro crystal semiconductor film.
  
6. A method of manufacturing a semiconductor device according to claim 4, wherein one of second harmonic, third harmonic, and fourth harmonic of the continuous wave YVO<sub>4</sub> laser is irradiated to crystallize the semiconductor film.

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7. A method of manufacturing a semiconductor device comprising the steps of:  
forming a semiconductor film on an insulating surface;  
crystallizing the semiconductor film by irradiation of linear laser light of a YVO<sub>4</sub> laser;  
 patterning the crystallized semiconductor film to form a crystallized island-like semiconductor film; and  
 forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.
8. A method of manufacturing a semiconductor device according to claim 7, wherein the semiconductor film is an amorphous semiconductor film or a micro crystal semiconductor film.
9. A method of manufacturing a semiconductor device according to claim 7, wherein the linear laser light is one of second harmonic, third harmonic, and fourth harmonic of the YVO<sub>4</sub> laser.
10. A method of manufacturing a semiconductor device comprising the steps of:  
forming a semiconductor film on an insulating surface;  
crystallizing the semiconductor film by irradiation of harmonic of a continuous wave YVO<sub>4</sub> laser;  
 patterning the crystallized semiconductor film to form a crystallized island-like semiconductor film; and  
 forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.
11. A method of manufacturing a semiconductor device according to claim 10, wherein the semiconductor film is an amorphous semiconductor film or a micro crystal semiconductor film.
12. A method of manufacturing a semiconductor device according to claim 10, wherein the harmonic is one of second harmonic, third harmonic, and fourth harmonic.
13. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film on an insulating surface;  
 patterning the semiconductor film to form an island-like semiconductor film;  
 crystallizing the island-like semiconductor film by irradiation of harmonic of a YVO<sub>4</sub> laser;  
 and

forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.

14. A method of manufacturing a semiconductor device according to claim 13, wherein the semiconductor film is an amorphous semiconductor film or a micro crystal semiconductor film.

15. A method of manufacturing a semiconductor device according to claim 13, wherein the harmonic is one of second harmonic, third harmonic, and fourth harmonic.

16. A method of manufacturing a semiconductor device comprising the steps of:  
 forming a semiconductor film on an insulating surface;  
 patterning the semiconductor film to form an island-like semiconductor film;  
 crystallizing the island-like semiconductor film by irradiation of a continuous wave YVO<sub>4</sub> laser; and

forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.

17. A method of manufacturing a semiconductor device according to claim 16, wherein the semiconductor film is an amorphous semiconductor film or a micro crystal semiconductor film.

18. A method of manufacturing a semiconductor device according to claim 16, wherein one of second harmonic, third harmonic, and fourth harmonic the continuous wave YVO<sub>4</sub> laser is irradiated to crystallize the island-like semiconductor film.

19. A method of manufacturing a semiconductor device comprising the steps of:  
 forming a semiconductor film on an insulating surface;  
 patterning the semiconductor film to form an island-like semiconductor film;

crystallizing the island-like semiconductor film by irradiation of linear laser light of a YVO<sub>4</sub> laser; and

forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.

20. A method of manufacturing a semiconductor device according to claim 19, wherein the semiconductor film is an amorphous semiconductor film or a micro crystal semiconductor film.

21. A method of manufacturing a semiconductor device according to claim 19, wherein the linear laser light is one of second harmonic, third harmonic, and fourth harmonic of the YVO<sub>4</sub> laser.

22. A method of manufacturing a semiconductor device comprising the steps of:  
forming a semiconductor film on an insulating surface;  
 patterning the semiconductor film to form an island-like semiconductor film;  
 crystallizing the island-like semiconductor film by irradiation of harmonic of a continuous wave YVO<sub>4</sub> laser; and  
 forming at least a channel region of a thin film transistor in the crystallized island-like semiconductor film.

23. A method of manufacturing a semiconductor device according to claim 22, wherein the semiconductor film is an amorphous semiconductor film or a micro crystal semiconductor film.

24. A method of manufacturing a semiconductor device according to claim 22, wherein the harmonic is one of second harmonic, third harmonic, and fourth harmonic.